

**UNITED STATES DISTRICT COURT  
SOUTHERN DISTRICT OF TEXAS  
HOUSTON DIVISION**

**FAIRFIELD INDUSTRIES, INC.  
d/b/a FAIRFILEDNODAL,**

**Plaintiff,**

**v.**

**WIRELESS SEISMIC, INC.,**

**Defendant.**

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**CIVIL ACTION NO. 4:14-CV-2972**

**MEMORANDUM AND ORDER**

In this patent infringement suit, the Court is asked to construe aspects of four patents. In particular, the Court considers the asserted claims of U.S. Patent Nos. 7,124,028 (“the ‘028 Patent”), 7,983,847 (“the ‘847 Patent”), 8,296,068 (“the ‘068 Patent”), and 8,644,111 (“the ‘111 Patent”). A hearing was held on February 4, 2015, during which the parties presented arguments in support of their proposed constructions. This Court now construes the disputed claim terms as a matter of law under *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 976 (Fed. Cir. 1995), *aff’d*, 517 U.S. 370 (1996).

Defendant Wireless Seismic, Inc. also moves for summary judgment for indefiniteness on eight claim terms.

Finally, Plaintiff Fairfield Industries, Inc. moves to strike five paragraphs of expert testimony from the Declaration of Dr. Loren Clare.

**I. BACKGROUND**

At issue in this case is wireless technology used to transmit data from individual sensor units. The units, which include a short-range radio transmitter, a short-range radio receiver, and a geophone, are deployed over the surface of the earth. Each unit detects data from the earth below

its placement, and can wirelessly transmit that data to its neighboring units. Units that are deployed adjacent to centralized collection stations wirelessly transmit data to those collection stations. The patents at issue all pertain to transmission systems and methods of wireless transmission.

Plaintiff Fairfield Industries, Inc. (“Fairfield”) filed suit in the Eastern District of Texas, alleging infringement of the ‘068 Patent, the ‘028 Patent, and the ‘847 Patent. (Doc. No. 1.)<sup>1</sup> Fairfield then filed an amended complaint adding allegations of infringement of the ‘111 Patent after that patent issued. (Doc. No. 13.) Fairfield later filed a second amended complaint. (Doc. No. 47.) Soon thereafter, this matter was transferred to the Southern District of Texas. (Doc. No. 49, 53.)

Defendant Wireless Seismic, Inc. (“Wireless Seismic”) moved to dismiss Count IV of the second amended complaint, which alleges infringement of the ‘111 Patent. The Court denied Wireless Seismic’s Motion without prejudice. (Doc. No. 100). The parties now seek to construe terms from each of the four patents-in-suit.

## **II. MOTION TO STRIKE**

As a preliminary matter, Fairfield moves to strike paragraphs 10 through 14 of Dr. Loren Clare’s declaration (Doc. No. 98) for failure to comply with the Patent Rules (“P.R.”) of the Eastern and Southern Districts of Texas. Paragraphs 10 through 14 are entitled, “The Meaning of ‘Seismic.’” (Doc. No. 98 at 4-5.) Fairfield contends that Wireless Seismic failed to disclose this expert testimony prior to claim construction, and therefore it constitutes inappropriate testimony as to the construction of the disputed claim terms.

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<sup>1</sup> All docket references are to Civil Action No. 4:14-CV-2972.

Prior to being transferred to the Southern District, this case was pending in the Eastern District. Under the then-controlling scheduling order, disclosures under Eastern District P.R. 4-2 were due on September 2, 2014. Eastern District P.R. 4-2 provides, in part, that,

“(a) Not later than 20 days after the exchange of ‘Proposed Terms and Claim Elements for Construction’ pursuant to P.R. 4.1, the parties shall simultaneously exchange a preliminary proposed construction of each claim term, phrase, or clause which the parties collectively have identified for claim construction purposes. . . .

(b) At the same time the parties exchange their respective ‘Preliminary Claim Constructions,’ they shall each also provide a preliminary identification of extrinsic evidence, including without limitation . . . testimony of percipient and expert witnesses they contend support their respective claim constructions. . . . With respect to any such witness, percipient or expert, the parties shall also provide a brief description of the substance of that witness’ proposed testimony.”

(E.D. Tex. P.R. 4-2.) Further, Eastern District P.R. 4-3 states that, no later than 60 days after service of the Invalidity Contentions, the parties must file a Joint Claim Construction and Prehearing Statement that contains “an identification of extrinsic evidence known to the party on which it intends to rely . . . [such as] fact and expert witnesses.” (E.D. Tex. P.R. 4-3.) The Southern District of Texas has nearly identical provisions in its patent rules. (P.R. 4-2, 4-3.)

Wireless Seismic did not identify Dr. Clare as an expert in its P.R. 4-2 or 4-3 disclosures. Accordingly, the Court cannot consider paragraphs 10 through 14 during claim construction. Thus, the Motion to Strike paragraphs 10 through 14 of Dr. Clare’s declaration for the purposes of claim construction is **GRANTED**.

### **III. LEGAL STANDARDS**

#### **A. Claim Construction**

Since claim construction is a matter of law, the task of determining the proper construction of all disputed terms lies with this Court. *Markman*, 517 U.S. at 372. Claim terms are generally given their plain and ordinary meanings to one of skill in the art, when read in the

context of the specification and prosecution history. *Hill-Rom Services, Inc. v. Stryker Corp.*, 755 F.3d 1367, 1371 (Fed. Cir. 2014). District courts are not obligated to construe terms with ordinary meanings, lest the trial courts be inundated with requests to parse the meaning of every word in the asserted claims. *O2 Micro Intern. Ltd. v. Beyond Innovation Tech. Co., Ltd.*, 521 F.3d 1351, 1360 (Fed. Cir. 2008); *see also Biotec Biologische Naturverpackungen GmbH & Co. KG v. Biocorp, Inc.*, 249 F.3d 1341, 1349 (Fed. Cir. 2001) (finding no error in non-construction of “melting”); *Mentor H/S, Inc. v. Med. Device Alliance, Inc.*, 244 F.3d 1365, 1380 (Fed. Cir. 2001) (finding no error in the lower court’s refusal to construe “irrigating” and “frictional heat”).

### **1. Claim Language**

The claims themselves provide substantial guidance as to the meaning of particular claim terms. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1314 (Fed. Cir. 2005). The context in which a term is used and the other claims of the patent in question can be instructive. *Id.* Because claim terms are normally used consistently throughout a patent, the usage of a term in one claim can often illuminate the meaning of the same term in other claims. *Id.*

### **2. Specification**

The specification, or the part of the patent in which the inventor describes and illustrates the invention in significant detail, is “always highly relevant to the claim construction analysis. Usually it is dispositive; it is the single best guide to the meaning of the disputed term.” *Phillips*, 415 F.3d at 1315. The significance of the specification derives from the statutory requirement that it describe the claimed invention in “full, clear, concise, and exact terms.” 35 U.S.C. § 112(a). In light of this requirement, courts may depart from the plain and ordinary meaning of claim terms based on the specification in two instances: lexicography and disavowal. *Hill-Rom Services*, 755 F.3d at 1371. The standards for finding lexicography and disavowal are exacting.

*Id.* To act as its own lexicographer, a patentee “must clearly set forth a definition of the disputed claim term other than its plain and ordinary meaning,” and “must clearly express an intent to redefine the term.” *Id.* (internal citation and quotation marks omitted). Similarly, disavowal requires that “the specification or prosecution history make clear that the invention does not include a particular feature.” *Id.* at 1372 (internal citation and quotation marks omitted). The specification may also limit the scope of the claims in other ways. For example, it may help resolve ambiguity when the ordinary meanings of the words in the claims lack sufficient clarity to define the scope of the claim. *Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1325 (Fed. Cir. 2002). Clear statements of scope in the specification are determinative of the correct claim construction. *Id.* at 1327.

When considering the import of the specification, courts are asked to walk the fine line between reading a claim in light of the specification, and impermissibly reading a limitation from the specification into the claim. *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 904 (Fed. Cir. 2004). Although a specification may describe very specific embodiments of an invention, claims are not to be confined to those embodiments. *Hill-Rom Services*, 755 F.3d at 1371. Even when a specification describes only a single embodiment, the claims of the patent will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using words or expressions of manifest exclusion or restriction. *Id.* at 1372 (internal citation and quotation marks omitted).

### **3. Prosecution History**

Like the claim terms and the specification, the prosecution history is considered intrinsic evidence. *Phillips*, 415 F.3d at 1317. The prosecution history consists of the complete record of the proceedings before the Patent and Trademark Office (“PTO”) and includes the prior art cited

during the examination of the patent. *Id.* But, since the prosecution history represents an ongoing negotiation between the PTO and the applicant, rather than the final product of that negotiation, it often lacks the clarity of the specification and is less useful for claim construction purposes. *Id.*

#### **4. Extrinsic Evidence**

If, after consideration of all the available intrinsic evidence, there is still some genuine ambiguity in the claims, courts may consider extrinsic evidence, such as expert witness testimony, dictionary definitions, and legal treatises. But, while extrinsic evidence “can shed useful light on the relevant art,” it is “less significant than the intrinsic record in determining the legally operative meaning of claim language.” *Phillips*, 415 F.3d at 1317 (internal citation and quotation marks omitted). Thus, although extrinsic evidence may aid claim construction analysis, it cannot be used to contradict the meaning of a claim term derived from the intrinsic sources. *Id.* at 1322-23.

#### **B. Indefiniteness**

A patent is invalid for indefiniteness if its claims, read in light of the specification detailing the patent and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention. *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2124 (2014). This standard displaced the prior “insolubly ambiguous” standard applied by the Federal Circuit. *Id.* Definiteness is “a delicate balance.” *Id.* at 2128. The definiteness requirement must take into account the inherent limitations of language, but at the same time, the patent must be precise enough to afford clear notice of what is claimed, thereby apprising the public of what is still open to them. *Id.* at 2128-29. Without such notice, there will remain a “zone of uncertainty which enterprise and experimentation may enter only at the risk of infringement claims.” *Id.* at 2129 (internal citation and quotation marks omitted). Of course, the

certainty which the law requires in patents is not greater than is reasonable. *Id.* Nevertheless, if a court determines that a claim is not “amenable to construction,” then the claim is invalid as indefinite. *Novo Indus., L.P. v. Micro Molds Corp.*, 350 F.3d 1348, 1353 (Fed. Cir. 2003). A party arguing indefiniteness must prove it by clear and convincing evidence. *Microsoft Corp. v. i4i Ltd. P’ship*, 131 S. Ct. 2238, 2242 (2011).

#### **IV. ANALYSIS**

##### **A. CLAIM CONSTRUCTION**

The Court will now apply these general principles of claim construction to the terms at issue here.

##### **1. “seismic data”**

This term is used throughout all four patents. Fairfield seeks to construe the term as “data containing information about lithologic subsurface formations, obtained by applying an acoustic signal to the ground and receiving the reflected signal.” Wireless Seismic seeks to construe the term as “data related to sensed earth vibrations.” Fairfield argues that its proposed construction is appropriate because the field of art to which the patents are directed is the conduct of seismic data acquisition surveys, and the patent explains what “seismic data” means in this context. Wireless Seismic responds that its construction gives “seismic,” a well-known term, its plain and ordinary meaning. Because the patent does not evidence an intent to deviate from this ordinary meaning, Fairfield’s proposed construction is unnecessarily narrow.

The patents’ specifications provide important and instructive context for this claim term. The specifications explain that,

“[s]eismic exploration generally utilizes a seismic energy source to generate an acoustic signal that propagates into the earth and is partially reflected by subsurface seismic reflectors (i.e., interfaces between subsurface lithologic or fluid layers characterized by different elastic properties). These reflected signals are detected and recorded by seismic

units having receivers or geophones located at or near the surface of the earth, thereby generating a seismic survey of the subsurface. *The recorded signals, or seismic energy data*, can then be processed to yield information relating to the lithologic subsurface formations.”

(the ‘847 Patent, 1:22-32 (emphasis added).)<sup>2</sup> The specifications continue on to explain that the purpose of the patents is to provide a more flexible transmission system for seismic survey arrays. (the ‘847 Patent, 2:64-67.)<sup>3</sup> In addition, all four specifications cite to U.S. Patent No. 6,070,129 (“the ‘129 Patent”), describing it as illustrative of the prior art. (the ‘847 Patent, 2:18-20.)<sup>4</sup> Prior art can help demonstrate how a disputed term is used by those skilled in the art. *Amer. Radio LLC v. Qualcomm Inc.*, 578 F. App’x. 975, 980 (Fed. Cir. 2014). The ‘129 patent claims,

“[a] method of transmission of seismic data to a remote station obtained during successive emission-reception cycles of seismic sessions in which during each emission reception cycle an emission of elastic waves is produced which are reflected by an underground formation . . . and are received with a plurality of receivers, *seismic data representing the received reflected waves*.”

(the ‘129 Patent, 9:30-37 (emphasis added).) The ‘129 Patent’s claim explicitly states what the patents-in-suit’s claims do not – “seismic data” means reflected signals. Together with the discussion of seismic exploration and the stated purpose of the invention, the explicit reference to the ‘129 Patent supports Fairfield’s proposed construction. Divorced from the specification, the term “seismic data” arguably could refer to any generic earth-related vibrations. But the specification is written to inform a person of skill in the art that “seismic data,” in the context of the relevant patents, is limited to reflected signals.

The prosecution history of the patents-in-suit also bolsters Fairfield’s construction. The Patent Trial and Appeal Board (“PTAB”) denied institution of *inter partes review* on all four

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<sup>2</sup> Although the Court cites to the ‘847 Patent, it notes that all four patents’ specifications contain the quoted language. (the ‘028 Patent, 1:14-24; the ‘111 Patent, 1:30-40; the ‘068 Patent, 1:22-32.)

<sup>3</sup> The ‘028 Patent, 2:60-63; the ‘111 Patent, 3:5-8; the ‘068 Patent, 2:64-67.

<sup>4</sup> The ‘028 Patent, 2:12-14; the ‘111 Patent, 2:26-28; the ‘068 Patent, 2:18-20.

patents. In its decisions, PTAB stated that “[t]he specification is directed to the generation of a seismic or geological survey . . . [it is] unreasonable to construe ‘seismic data’ as broader than ‘data containing information about lithologic subsurface formations, obtained by applying an acoustic signal to the ground and receiving the reflected signal’”. (Doc. No. 109-1 at 18; Doc. No. 106-2 at 11-12; Doc. No. 106-3 at 12; Doc. No. 106-4 at 14.) Although PTAB applies a different construction standard than the district courts do, its claim construction analysis serves as further intrinsic evidence that Fairfield’s proposed construction is appropriate.

Wireless Seismic is correct that the term “seismic” can refer generally to vibrations of the earth. As it notes, Fairfield’s prior art, the Telseis system, defines the term “seismic” thusly, and recognizes that seismic exploration can capture both reflected and refracted signals. But Wireless Seismic’s argument for this broad construction falters because it fails to account for the intrinsic evidence that is paramount to this Court’s inquiry. This Court must begin its decision-making process by reviewing the same resources as would a person skilled in the art – the patent specification and the prosecution history. *Multiform Desiccants, Inc. v. Medzan, Ltd.*, 133 F.3d 1473, 1477 (Fed. Cir. 1998); *see also Medrad, Inc. v. MRI Devices Corp.*, 401 F.3d 1313, 1319 (Fed. Cir. 2005) (“We cannot look at the ordinary meaning of the term ... in a vacuum. Rather, we must look at the ordinary meaning in the context of the written description and the prosecution history.”) (internal citation omitted). Although a person skilled in the art may understand the term “seismic” to refer to a range of earth-related vibrations, a person skilled in the art will understand the term “seismic” *in the context of the specifications and the prosecution history* to refer only to reflected signals. The totality of the specification’s language, including the explicit prior art reference and the four PTAB decisions, narrow the scope of “seismic” from all earth-related vibrations to a particular type of vibration. Adopting the more expansive

construction of the term would require ignoring this intrinsic evidence. Just as a person of skill in the art would not understand the term in a vacuum, this Court may not apply a plain and ordinary meaning that overlooks this significant context.<sup>5</sup>

## 2. “seismic acquisition”/“acquiring seismic data”

This claim term appears in slightly different iterations throughout all four patents-in-suit. Fairfield seeks to construe it as “recording data as part of a seismic exploration survey.” Wireless Seismic believes it should be construed as “using a sensor to obtain seismic data.” But, both parties agree that the construction of this term should dovetail with the Court’s construction of “seismic data.”

For the reasons outlined above, the Court construes “seismic data” as “data containing information about lithologic subsurface formations, obtained by applying an acoustic signal to the ground and receiving the reflected signal.” In accordance with this construction, the Court construes “seismic acquisition” as “recording seismic data as part of a seismic exploration survey.”

## 3. “array”

This term appears in the ‘028 Patent and the ‘847 Patent. Fairfield’s proposed construction is “one or more lines of individual units, where multiple lines are set out side-by-side forming a grid.” Wireless Seismic’s proposed construction is “a plurality of units forming one or more transmission paths toward a destination.” Wireless Seismic argues that an array should be defined by its function, while Fairfield believes that it should be construed as a

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<sup>5</sup> Wireless Seismic urges this Court to follow *GE Lighting Solutions, LLC v. AgiLight, Inc.*, 750 F.3d 1304 (Fed. Cir. 2014), and apply what it believes is the plain and ordinary meaning of “seismic data.” The *GE Lighting Solutions* court held that “insulation displacement connector” should be given the meaning commonly used in electrical engineering. *Id.* at 1308. Unlike the term in that case, neither “seismic” nor “seismic data” has a meaning that is limited to a particular field.

physical arrangement. Further, Wireless Seismic also contends that, if the Court believes that “array” should be construed as a physical arrangement, then Fairfield’s proposed construction should not be broadened to include non-grid formations (Feb. 4, 2015 Hearing Tr. 56:25-57:8.)

Fairfield’s proposed construction arises from specification language which states,

“[t]ypically, the seismic units or stations are laid out in an array, wherein the array consists of a line of stations . . . For data over a larger area and for three-dimensional representations of a formation, multiple lines of stations may be set out side-by-side, such that a grid of receivers is formed.”

(the ‘028 Patent, 1:26-32; the ‘847 Patent, 1:34-40.) Additionally, the specification teaches that a “[t]ransmission network is comprised of a plurality seismic acquisition units spread out in a seismic array.” (the ‘028 Patent, 4:39-41; the ‘847 Patent, 4:41-43.) Claim 1 of the ‘847 Patent describes “array” as a physical arrangement stating, “said seismic acquisition units are physically arranged in an array.” (the ‘847 Patent, 10:30-31.) Each of these references discusses the physical arrangement of the stations, not their function as transmission pathways.

The prosecution history of the ‘847 Patent and the ‘028 Patent further support Fairfield’s proposed construction. In denying *inter partes review* on both patents, PTAB rejected Wireless Seismic’s proposed construction because “an array of units does not have to transmit anything to any other unit or form a transmission path of any kind.” (Doc. No. 109-1 at 13; Doc. No. 109-2 at 12.) Instead, PTAB noted that the specifications defined “array” by mere physical arrangement. (Id.) As additional support, PTAB pointed out that the Applicant gave the following response during the examination of the ‘847 Patent: “[t]he invention further includes how those multiple [seismic data acquisition units] and the [receiving units] are configured and physically arranged in an overall array.” (Doc. No. 109-1 at 15.) This response is consistent with the construction of “array” as a physical formation, not a functional system.

By contrast, Wireless Seismic has not identified any specification or claim language which supports construing the term “array” by its function. Wireless Seismic’s strongest intrinsic evidence in support of a functional definition is the Examiner’s description of an array as a “cooperative total group of units.” (Doc. No. 99-11 at 6.) In light of the specification language and the prosecution history, however, this passing reference is insufficient to support Wireless Seismic’s proposed construction. This Court finds that neither the specification nor the prosecution history imposes any functional limitations on the meaning of the term. Rather, the intrinsic evidence supports Fairfield’s position that the plain and ordinary meaning of “array” denotes a physical arrangement. As such, the Court adopts Fairfield’s proposed construction of this term.

#### **4. “partitioning”**

This term is used in claims 1 and 2 of the ‘028 Patent. Fairfield seeks to construe the term as “separating into two or more separate and not overlapping parts.” Wireless Seismic contends that it should be given its plain and ordinary meaning, or alternatively construed as “dividing into subsets.”

Fairfield argues that its proposed construction recognizes that non-overlapping parts are inherent in the plain meaning of the term “partitioning.” In support of its construction, Fairfield notes that, in the prosecution history, the Applicant stated that the method “partitions a large array into subsets and utilizes each subset to transmit data collected by that subset.” (Doc. No. 87-31 at 12.) Fairfield argues that this excerpt suggests that data from one subset of acquisition units would not be communicated to another subset, and therefore the subsets cannot be overlapping. Wireless Seismic counters that the specification teaches that subsets of acquisition units can change from transmission to transmission because the transmission pathways can be

adjusted to account for environmental conditions and outages. Thus, Fairfield’s proposed construction is misleading because it suggests that a unit cannot be in one subset during one transmission and in another subset during a later transmission. Because the subsets are not fixed from one transmission to the next, Wireless Seismic argues that its proposed construction is more appropriate. Wireless Seismic also contends that the introduction of the new term “parts” in Fairfield’s proposed construction is unnecessarily confusing.

The term “partitioning” has a plain and ordinary meaning that is accessible to any fact-finder. Neither party has demonstrated that the intrinsic evidence supports a construction that deviates from this meaning. Thus, the Court declines to impose a construction. *See O2 Micro Intern. Ltd.*, 521 F.3d at 1360.

### **5. the “non-interfering” terms**

This term appears in various iterations in the ‘028 Patent and the ‘068 Patent. Claim 1 of the ‘028 Patent uses the phrase “non-interfering radio transmission.” Claim 7 of the ‘028 Patent uses the phrase “transmission ranges that do not interfere with one another.” Finally, claims 1, 2, 4, 9, 10, and 12 of the ‘068 Patent use the term “non-interfering.” Fairfield believes that no construction is necessary, or alternatively, that “non-interfering” should be construed as “without causing confusion or distortion.” Accordingly, it seeks to construe the phrase in claim 7 in the ‘028 Patent as “transmission ranges adjusted so as not to cause confusion or distortion of radio signals.” Wireless Seismic argues that the term “non-interfering” should be construed as “able to permit simultaneous communication,” and the phrase in claim 7 of the ‘028 Patent should be construed as “transmission ranges that allow for simultaneous communication.”

Fairfield argues that its proposed construction accounts for the fact that interference may cause degradation to a signal without completely preventing its transmission. In support of its

position, it cites to two general dictionaries. By contrast, Wireless Seismic's proposed construction seeks to further narrow the definition of "non-interfering." It argues that, although Fairfield's proposed construction may hew to the non-technical, ordinary meaning of interfere, the Court should consider the meaning of "non-interfering" in the radio communications context. Wireless Seismic contends that, in this particular context, two communications are non-interfering if each does not prevent the other from simultaneously communicating. It notes that a statement by the Applicant in the prosecution history lends support for its position. While discussing the partitioning of the array into subsets, the Applicant stated that "[b]ecause non-interfering radio transmissions are selected for each subset, the subsets can gather and transmit data simultaneously." (Doc. No. 99-11 at 21.)

Wireless Seismic is correct that the prosecution history indicates that an absence of interference facilitates simultaneous data transmission. But the Applicant's statement indicates that simultaneous data transmission is a feature, not a necessary quality, of non-interference. The mere fact that "non-interfering radio transmission" allows for simultaneous data transmission does not mean that something must fully prevent transmission to constitute interference. Simultaneous data transmission may be a benefit of non-interference, but it does not define the term. The plain and ordinary meaning of interference is significantly broader than Wireless Seismic suggests, and it has not pointed out any intrinsic evidence that compels this Court to constrain this plain and ordinary meaning. Fairfield's proposed construction is also inappropriate because it introduces terms, such as "confusion" and "distortion," that have no basis in the intrinsic record. These terms interject unnecessary ambiguity into the construction.

The Court believes that a fact-finder can readily apply the plain and ordinary meaning of “non-interfering” without the aid of additional construction. Therefore, the Court declines to construe the term.

## **6. “preset”**

This term appears in claims 36 and 37 of the ‘028 Patent. Fairfield seeks to construe it as “set or determined prior to transmission.” Wireless Seismic seeks to construe it as “determined after deployment and prior to transmitting data along the path.” The parties disagree about whether, in order to be preset, the path must be set after deployment.

Claims 36 and 37 depend on independent claim 13, which teaches “subsequent to deployment, identifying at least two separate transmission paths from a seismic acquisition unit to the receiving station.” Wireless Seismic argues that, because paths are not identified prior to deployment, they cannot be preset prior to deployment. Fairfield counters that there is a distinction between identifying paths and setting paths. Accordingly, a system may have multiple alternate paths preset prior to deployment, even if some of those paths are identified after deployment.

Where possible, the Court begins with the specification language as it is the single best guide to the meaning of a disputed term. The specification explicitly discusses preset transmission paths in reference to Figure 1, stating,

“[i]n operation, a preferred transmission path may be preset in units 12 or predetermined. Likewise alternate transmission paths may be preset in units 12 or predetermined. These preset paths, as well as the number of paths required for a particular array 14, are determined based on the volume of the data to be transmitted, the data transmission rates, signal strength and the number of “real time” radio channels having different transmission parameters such that the radio transmission channels are non-interfering, battery power, location of the unit, etc.”

(the ‘028 Patent, 7:32-41.) According to the specification, path determination depends on a number of listed factors. None of these factors is contingent on deployment, and all may be known before individual units are deployed across a physical terrain. This language makes no mention of deployment, and does not link the time at which the paths are preset to deployment. The specification also notes that, “[p]rior to transmission or a set of transmissions along a string, a beacon signal may be utilized to verify the preferred transmission path . . . Alternatively, rather than transmitting data utilizing a preset or predetermined path, the beacon signal may be used to establish [a different transmission path].” (the ‘028 Patent, 7: 42-49.) This verification and adjustment process suggests that paths need not be preset after deployment, as any necessary changes to the transmission path can be made after deployment but prior to transmission.

Although Wireless Seismic rightly points out that claim 13 explicitly states that transmission paths are identified after deployment, this Court heeds the oft-repeated instruction not to limit a claim to a particular embodiment absent clear evidence. *See Hill-Rom Services*, 755 F.3d at 1372. Claim 13 indicates that transmission paths may be preset after deployment, but neither the specification language nor the prosecution history indicates that deployment is a rigid and universal temporal boundary. Without clear evidence that the term “preset” refers only to paths determined after deployment, the Court cannot read this limitation into the term. Thus, the Court adopts Fairfield’s proposed construction, and construes “preset” as “set or determined prior to transmission.”

## **7. the “subset” terms**

The term “subset” appears in claims 1 through 7 of the ‘028 Patent and in claim 1 of the ‘068 Patent. Fairfield contends that no construction is necessary, or in the alternative, “subset”

should be construed as “a set of the plurality of seismic acquisition units.” Wireless Seismic seeks to construe the term as “less than all of the seismic acquisition units.”

Wireless Seismic argues that Fairfield’s proposed construction suggests that a subset may consist of the entirety of its parent set, thereby ignoring the prefix “sub.” Fairfield disagrees with Wireless Seismic’s proposed construction because it believes Wireless Seismic seeks to use this construction as an end-run around Fairfield’s construction of the term “partitioning.” Under Wireless Seismic’s proposed construction, two subsets could overlap, with individual units simultaneously in both subsets.

The term “subset” has a plain and ordinary meaning, and is not a technical term that is unique to a particular field of art. Neither party has identified intrinsic evidence to support another meaning. Thus, the Court need not engage in the unnecessary exercise of claim construction for this term.

#### **8. “utilizing a at least two of said seismic acquisition units”**

This term comes from claim 1 of the ‘028 Patent. It appears twice, once in reference to transmitting seismic data, and once in reference to receiving seismic data. Fairfield believes that no construction is necessary, or alternatively, the extraneous “a” should be excised from the phrase. Wireless Seismic seeks to construe the term as “using a radio link between a first and a third seismic acquisition unit and a radio link between a second and the third seismic acquisition unit.”

Wireless Seismic argues that this claim is directed to the use of multiple paths to transmit data if one unit fails. Accordingly, it argues that its proposed construction reflects the fact that either a first *or* a third unit may be used to transmit data to and from a second unit. If the first unit fails, the third unit serves as an alternative route to and from the second unit, and if the third

unit fails, the first unit serves as an alternative. Wireless Seismic contends that this is the only configuration contemplated by the claim, and that the claim is not directed to *relaying* data. Fairfield disagrees, arguing that the claim term also encompasses a relay system in which data are transmitted from the first unit to a second, and again from the second unit to a third.

As written, the claim language allows for either configuration – alternative paths or relay. All that is required is the use of at least two seismic acquisition units; the claim does not specify whether the units are to be used in the alternative or in succession. Although the specification does discuss the availability of multiple pathways (the ‘028 Patent, 4:60-66), it clearly also contemplates the use of a relay. The specification states,

“[i]n transmissions up the chain, i.e., from the most remote seismic acquisition unit to the control station, each unit receives seismic data from a seismic unit “down” the chain and transmits the received seismic data up the chain along with receiving unit’s locally stored seismic data. Preferably, as a transmission moves up the chain, it is bounced between seismic acquisition units so as to be relayed by each unit in the array.”

(the ‘028 Patent, 3:21-29.) Further, Figure 1 depicts at least three strings of seismic acquisition data, labeled 18*a*, 18*b*, and 18*c*. The strings “are depicted to indicate possible transmission paths.” (the ‘028 Patent, 6:14-15.) These paths run through adjacent units in a relay format. (the ‘028 Patent, Figure 1.) Finally, the abstract of the ‘028 Patent teaches that,

“[t]he transmission method utilizes multiple seismic acquisition units within an array as intermediate short range radio receivers/transmitters to pass collected seismic data in relay fashion back to the control station.”

(the ‘028 Patent, Abstract.)

The intrinsic evidence does not indicate that the plain and ordinary meaning of the claim term excludes the use of a relay. Wireless Seismic’s proposed construction introduces new and ambiguous terminology, such as “radio links,” while artificially narrowing the construction of the claim term. The Court sees no support for limiting the phrase “utilizing a at least two [units]”

to one particular configuration that uses at least two units. Thus, the Court finds that no construction is necessary.

### 9. “control station”

This term appears in claims 16 through 18 of the ‘847 Patent. Fairfield believes no construction is necessary, but in the alternative, seeks to construe it as “the receiving point for all seismic data acquired by the array.” Wireless Seismic proposes “a unit that collects data from, or exercises control over, the plurality of wireless seismic data acquisition units” as the appropriate construction.

Fairfield contends that Wireless Seismic’s proposed construction is inappropriate because it is unreasonably broad, and suggests that the control station collects data directly from individual units, instead of collecting data from intermediary units. Wireless Seismic responds that Fairfield’s proposed construction is erroneous because the ‘847 Patent makes clear that the control station does not necessarily receive *all* seismic data.

Both parties have adeptly identified shortcomings in one another’s proposed constructions. The specification indicates that control stations can, but need not be, the ultimate destination for seismic data from the units. Rather, it states that concentrators, which are located in the proximity of the seismic acquisition units,

“can store seismic data or transmit it back as desired to control station. In one embodiment, concentrators locally store seismic data but transmit quality control data received from the acquisition units back to control station 16.”

(the ‘847 Patent, 6:49-52, *see also* 4:1-3.) The specification also teaches that the control station does not collect data directly from each individual unit:

“Upon acquisition, unit 42g [depicted in Figure 1] will transmit the acquired data up the string to 42h, along with any data received by wireless transmission from 42f. All seismic data from the units 12 comprising string 40 will be conveyed up the string to control station 16.”

(the ‘847 Patent, 8:33-37.) Additionally, the phrase “exercises control over” in Wireless Seismic’s proposed construction is vague and unsupported by the intrinsic record.

The Court is hesitant, however, to conclude that no construction is necessary. Claim construction is not an obligatory exercise, but where parties present a fundamental dispute over the technical scope of a term, it is this Court’s duty to resolve it. *See O2 Micro Intern. Ltd.*, 521 F.3d at 1362. Accordingly, the Court requests that the parties submit amended proposed constructions that comport with the Court’s findings. The Court urges the parties to propose a joint construction or competing constructions that rectify the shortcomings outlined here.

#### **10. “molded into”**

This term is used in claim 5 of the ‘847 Patent. Fairfield contends that no construction is necessary. Wireless Seismic seeks to construe the term as “integrated into the casing through the process of molding.” In support of its contention, Wireless Seismic points to specification language which states, “in one embodiment of the invention, each unit 12 [depicted in Figure 1] may include a short-range radio transmission antenna 36 molded or otherwise integrated into the casing 35 of the unit.” (the ‘847 Patent, 9:23-26.)

Wireless Seismic has not demonstrated that this term is used in a manner inconsistent with its plain and ordinary meaning. Its proposed construction contributes little to a fact-finder’s understanding of the term. The Court determines that this term does not require construction.

#### **11. “within radio transmission contact [with]”**

This term appears in claims 10 and 11 of the ‘847 Patent. Fairfield contends that no construction is necessary, or in the alternative, seeks to construe the term as “capable of receiving [short-range] radio signals from.” Wireless Seismic argues that the term should be construed as “at a given point in time, having an active transmission link.” This dispute over the

construction of this term centers on the meaning of the word “contact” in the radio transmission context. Fairfield argues that contact means the capability of receiving a signal; under its construction, if someone has a cell phone, he is within cell phone transmission contact with anyone capable of calling him. By contrast, Wireless Seismic contends that contact refers to an active transmission connection. Under its construction, a cell phone user is only in contact with the person on the other end of a phone call, not with anyone who might conceivably call him.

Claim 8, upon which claims 10 and 11 depend, states that the “short-range radio receiver of said receiving unit is configured to be capable of short-range radio transmission contact with at least two seismic data acquisition units.” The phrase “capable of short-range radio transmission contact” undercuts Fairfield’s argument that “contact” refers to the capability of receiving a signal. If Fairfield’s proposed construction is substituted for the disputed term, claim 8 would teach that the receiving unit is configured to be capable of being capable of receiving radio signals. This is clearly redundant. By contrast, Wireless Seismic’s proposed construction, which contemplates actual transmission, follows from the language of claim 8. Under Wireless Seismic’s proposed construction, claim 8 teaches that the receiving unit is configured to be capable of a short-range active transmission link. Claim 8 indicates that the plain and ordinary meaning of “radio transmission contact” in the context of the patent is transmission, not the capacity for transmission.

Nevertheless, Wireless Seismic’s proposed construction introduces new and ambiguous terms that do not derive from the claim or specification language. The term “active transmission link” has no precedent in the patent and raises additional construction issues. Thus, the Court finds that the appropriate construction for this term is “receiving [short-range] radio signals from.”

## 12. “downstream/upstream unit”

The terms “upstream” and “downstream” appear in claims 2, 17, and 18 of the ‘111 Patent. Fairfield contends that no construction is necessary. In the alternative, it seeks to construe an upstream unit as “a unit in the direction opposite to the flow of data,” and a downstream unit as “a unit in the direction of the flow of data.” Wireless Seismic seeks to construe an upstream unit as “a unit on the chain that is closer to the concentrator based on the number of hops to concentrator,” and a downstream unit as “a unit on the chain that is farther from the concentrator based on the number of hops to the concentrator.”

For the reasons outlined in Part IV-B-1, this Court finds that claims 1 and 16 of the ‘111 Patent are indefinite. Claims 2, 17, and 18 are similarly indefinite because they depend upon claims 1 and 16. The Court need not construe the terms “upstream” and “downstream” as they appear only in these indefinite claims.

## B. INDEFINITENESS

Wireless Seismic contends that eight terms in the patents-in-suit are indefinite. Accordingly, it moves for summary judgment on all eight terms.

### 1. “substantially prevent communication interference between the first and second pairs”

This term appears in claims 1 and 16 of the ‘111 Patent. The full clauses read,

1 “assigning first and second transmission parameters to the first and second pairs of acquisition units to substantially prevent communication interference between the first and second pairs”

...

16 “Wherein the first and second pairs or [sic] acquisition units are assigned first and second transmission parameters, respectively, to substantially prevent communication interference between the first and second pairs.”

Fairfield originally sought to construe the term as “prevent communication interference between the first and second pairs to the extent reasonably practical.” It later amended its proposed construction to “so that communication between the first and second pairs are non-interfering with each other, but may nonetheless be susceptible to other interference.” Wireless Seismic maintains that the term is indefinite because the specification provides no guidance for the degree of prevention that constitutes substantial prevention.

It is clear that the use of the word “substantially” does not necessarily make a claim term indefinite. *Deere & Co. v. Bush Hog, LLC*, 703 F.3d 1349, 1359 (Fed. Cir. 2012) (“This court has repeatedly confirmed that relative terms such as “substantially” do not render patent claims so unclear as to prevent a person of skill in the art from ascertaining the scope of the claim.”). It is also well accepted that patentable inventions cannot always be described in terms of exact measurements. *Thomas Swan & Co. Ltd. v. Finisar Corp.*, No. 2:13-CV-178-JRG, 2014 WL 2885296, \*25 (E.D. Tex. June 25, 2014) (internal citation omitted). An applicant necessarily must use the meager tools provided by language, which lack exactitude and precision. *Id.* Thus, terms like “substantially” are used in patents in order to accommodate the minor variations that may be appropriate to secure the invention and provide the inventor with the benefit of his or her invention. *Id.*; *see also Verve, LLC v. Crane Cams, Inc.*, 311 F.3d 1116, 1120 (Fed. Cir. 2002) (noting that the use of terms such as “substantially” may be necessary to provide the inventor with the benefit of his invention). But, when a word of degree is used in a patent, the court must determine whether the patent’s specification provides a standard for measuring that degree. It is not enough to identify *some* standard for measuring the scope of a phrase. *Interval Licensing LLC v. AOL, Inc.*, 766 F.3d 1364, 1370-71 (Fed. Cir. 2014). Rather, the claims, when read in

light of the specification and the prosecution history, must provide objective boundaries for those of skill in the art. *Id.*

In light of this standard, Wireless Seismic correctly notes that the intrinsic evidence does not offer any objective boundaries for the term “substantial.” The fact that the specification and prosecution history lack evidence that would inform a person skilled in the art as to how much interference prevention the patent contemplates sets it apart from patents that have overcome indefiniteness challenges to terms of degree. *See e.g., Enzo Biochem, Inc. v. Applera Corp.*, 599 F.3d 1325, 1335 (Fed. Cir. 2010) (“Because the intrinsic evidence here provides ‘a general guideline and examples sufficient to enable a person of ordinary skill in the art to determine [the scope of the claims],’ the claims are not indefinite even though the construction of the term ‘not interfering substantially’ defines the term without reference to a precise numerical measurement.”) (internal citation omitted). Without such intrinsic evidence, future inventors are forced to speculate about where the threshold is, and whether their inventions infringe because they allow for some communication interference. Fairfield’s original proposed construction illustrates how vague the challenged term is; in its original proposed construction, Fairfield merely substituted one ambiguous term, “to the extent reasonably practical,” for another.

Instead of identifying guideposts in the intrinsic evidence, Fairfield argues that the term “substantially” was included in the ‘111 Patent simply to acknowledge the reality that wireless systems can never be free from all interference. External sources, such as electrical devices operating in the vicinity of the units or naturally-occurring static electricity, will always generate interference, so complete prevention is impossible. Fairfield points out that courts have found that “substantially” is not indefinite where it is used to account for natural limitations. *See e.g., Ruckus Wireless, Inc. v. Netgear, Inc.*, No. C-08-2310 PJH, 2013 WL 6627737, \*4 (N.D. Cal.

Dec. 16, 2013) (holding that the term “substantially omnidirectional” was not indefinite because “real antennas are never perfectly omnidirectional, as the physical structure of the antenna itself creates some minor interference that prevents a perfectly circular radiation pattern”). Fairfield argues that, like in *Ruckus Wireless*, the term “substantially” in claims 1 and 16 of the ‘111 Patent merely recognizes that wireless systems are never perfectly free from external interference.

But the claim language of the ‘111 Patent, the ‘028 Patent, and the ‘068 patent, and the expert testimony all seriously undermine Fairfield’s contention. First, the disputed term in claims 1 and 16 of the ‘111 Patent explicitly refers to communication interference “*between* the first and second pairs” of seismic acquisition units (emphasis added). The use of the word “between” strongly suggests that these claims are directed toward *internal* interference prevention, i.e., preventing one pair of units engaged in data transmission from interfering with another pair of units engaged in data transmission. The specification, which contains a detailed discussion of assigning different transmission parameters to adjacent units, supports this reading. It states,

“[i]n the event multiple adjacent strings are desired, radio transmission parameter assignments may be made to minimize interference with other transmissions. For example, string 18*a* may transmit data at a first set of radio transmission parameters while string 18*b* may transmit data at a second set of parameters. . . . [I]nterference between adjacent strings, as well as individual units, may also be minimized by making transmissions in discreet data packages sent in short transmission bursts.”

(the ‘111 Patent, 5:63-6:23.) This explanation solely concerns internal interference, between adjacent strings or individual units, and makes no mention of external interference from other sources. Where the specification does refer to external interference, it does so clearly, noting that an individual unit may become nonoperational due to “interference from other electrical devices operating in the vicinity of the unit.” (the ‘111 Patent, 2:67-3:1.) This reference to interference

from other devices is clearly distinguishable from the disputed terms, which only discuss “interference between the first and second pairs.”

Second, the ‘028 and ‘068 Patents and the expert testimony demonstrate that it is possible to prevent all interference *between* pairs of seismic acquisition units. Both the ‘028 and ‘068 Patents claim methods of seismic data transmission in which transmission parameters are selected to be non-interfering with one another. (the ‘028 Patent, 10:29-32; the ‘068 Patent, 10:30-32.) The parties’ experts, Dr. Clare and Dr. Behnaam Aazhnag, confirm that transmission parameters can be selected to prevent internal interference. (Dr. Clare Decl. ¶ 23; Dr. Aazhang Depo. 101:6-16.) In light of this possibility, the use of the word “substantially” in claims 1 and 16 of the ‘111 Patent does not serve to acknowledge a physical impossibility or imprecision. Rather, it injects a question of degree – a question that finds no answer in the intrinsic evidence.

The Court finds that the term “substantially prevent communication interference between the first and second pairs,” when read in light of the specification and the prosecution history, fails to inform with reasonable certainty those skilled in the art about the degree of interference to be prevented. Accordingly, the Court holds that the claims that depend on that phrase, including claims 1 and 16 of the ‘111 Patent, are invalid for indefiniteness.

## **2. “multiplexing signature”**

This term appears in claims 5, 6, 10, 21, and 22 in the ‘111 Patent. Fairfield seeks to construe it as “an identifier used in multiplexing.” Wireless Seismic contends that it is indefinite.

All the claims in the ‘111 Patent, including those with the term “multiplexing signature,” depend on claim 1 or claim 16. Since claims 1 and 16 were held invalid for indefiniteness, the Court need not construe the term “multiplexing signature.”

**3. “so as to form at least two short-range radio transmission paths between adjacent seismic data acquisition units emanating from a plurality of individual units”**

This term appears in claim 8 of the ‘847 Patent. Fairfield contends that no construction is necessary, or in the alternative, it should be construed as “so as to form at least two short-range radio transmission paths between adjacent seismic data acquisition units that come out from a plurality of the individual seismic data acquisition units.” Wireless Seismic believes it is indefinite.

The relevant clause of claim 8 reads,

“wherein said wireless seismic data acquisition units are disposed in an array and the short-range radio transmitter and receiver of each wireless seismic data acquisition unit are configured so that a plurality of individual seismic data acquisition units are in short-range radio transmission and reception communication with at least two other individual seismic data acquisition units adjacent thereto so as to form at least two short-range radio transmission paths between adjacent seismic data acquisition units emanating from a plurality of individual units.”

(the ‘847 Patent, 11:26-39.) Wireless Seismic argues that this term is ambiguous because it has two possible meanings. It could indicate that two transmission paths run between the same two adjacent seismic data acquisition units. Or, it could indicate, as Fairfield suggests it does, that one path runs from a first unit to a second unit, and a second path runs from the same first unit to a third unit. The first formulation only contemplates two units, while the second formulation contemplates a total of three. Wireless Seismic contends that the patent offers no means by which to resolve this ambiguity, and therefore the claim is indefinite. Further, it argues that the patent provides no explanation of how the paths emanate or come out from a plurality of the units.

Wireless Seismic’s argument overlooks key language that immediately precedes the disputed claim term. Claim 8 contemplates “a plurality of individual seismic data acquisition units [that] are in short-range radio transmission and reception communication with at least two

*other* individual seismic data acquisition units adjacent thereto so as to form at least two short range radio transmission paths.” (the ‘847 Patent, 11:29-34 (emphasis added).) As written, the claim discusses transmission paths between one unit and at least two other units. This excludes a configuration with two transmission paths between the same two units and indicates that the claim contemplates a formulation with at least three units, thereby undercutting Wireless Seismic’s argument that the disputed term has two possible meanings.

Further, the Court is unpersuaded that the term “emanate” or “come out from” renders the term indefinite. The ‘847 Patent contains extensive written descriptions of transmission paths between the units, and a pictorial representation of the paths in an array. Wireless Seismic has not demonstrated that a person of skill in the art would not understand this term as it is used in the claim. Thus, the Court finds that Wireless Seismic has not met its burden of demonstrating by clear and convincing evidence that this claim term is indefinite.

#### **Antecedent Basis**

Wireless Seismic argues that the following three terms are indefinite because they lack a proper antecedent basis.

#### **4. “the other transmission path”**

This term is used in claim 14 of the ‘028 Patent. Fairfield believes that no construction is necessary, or alternatively, the term should be construed as “any other transmission path.” Wireless Seismic contends that it is indefinite.

Claim 13, the independent claim upon which claim 14 depends, teaches “identifying at least two separate transmission paths from a seismic acquisition unit to the receiving station.” (the ‘028 Patent, 11:35-37.) Claim 14 teaches “[t]he method of claim 13, further comprising the step of transmitting a first signal along one transmission path, and transmitting a second signal

along the other transmission path.” (the ‘028 Patent 11:47-50.) Although claim 13 contemplates “at least two separate transmission paths,” Wireless Seismic contends that the term “the other transmission path” in dependent claim 14 suggests that there is only one other path. Wireless Seismic believes that there are two possible ways to clarify the claim term – by adopting Fairfield’s proposed construction or by amending claim 13 to refer to only two transmission paths. Since either interpretation is possible, Wireless Seismic argues that the claim is indefinite. Fairfield disagrees that the latter interpretation is possible, arguing that the ‘028 Patent makes clear that it contemplates more than two transmission paths. Therefore, it is implausible to construe claim 13 as limited to only two paths.

There is ample evidence that the ‘028 Patent is directed to more than two transmission paths between seismic acquisition units. The specification states,

“[i]n the illustration of Fig. 1, array 14 is shown as being comprised of three seismic acquisition unit strings 18*a*, 18*b*, and 18*c*. Each string 18*a*, 18*b*, and 18*c* illustrates a different potential transmission path defined by wireless links 23 between the units 12 within a string. . . . [F]or the purposes of the invention, a “string” 18 of seismic units 12 for a particular transmission path is defined by the selected transmission path by which data is communicated from one unit 12 to another. Thus, for any given array 14, a “string” of units may be constantly changing between transmissions.”

(the ‘028 Patent, 5:27-38.) The specification also clarifies that, “while three strings 18 are depicted to indicate possible transmission paths, system 10 can comprise any number of strings.”

(the ‘028 Patent, 6:14-16.) This language undermines Wireless Seismic’s argument that claim 13 can be read to discuss only two transmission paths. Since this interpretation is implausible, the Court finds that Wireless Seismic has not met its burden of demonstrating indefiniteness. The Court also finds that no further construction is necessary.

## 5. “said seismic data acquisition units”

This term appears in claim 1 of the ‘847 Patent. Fairfield believes that no construction is necessary, or in the alternative, seeks to construe the term as “said at least three wireless seismic data acquisition units.” Wireless Seismic argues that the term is indefinite because it is unclear which set of data acquisition units the term denotes.

Claim 1 of the ‘847 Patent states, in relevant part,

“A seismic data transmission system comprising:

A. at least three wireless seismic data acquisition units,

...

B. a receiving unit,

...

C. wherein the short-range radio transmitter and receiver of each wireless seismic data acquisition unit are configured for short-range radio transmission and reception communication with at least two other wireless seismic data acquisition units;

D. “wherein said seismic data acquisition units are physically arranged in an array so that each seismic data acquisition unit is adjacent to at least two other seismic data acquisition units and is capable of short-range radio transmission and reception communication with the at least two other seismic data acquisition units; and

(the ‘847 Patent 10:7-35.) The claim discusses two sets of seismic data acquisition units – the set of “at least three” introduced in element A and the set of “at least two other” units introduced in element C. Wireless Seismic believes that the disputed term, which appears in element D, could refer to either set, and is therefore indefinite.

While the Court acknowledges that the disputed term is far from crystal clear, it nevertheless finds that the remainder of element D offers reasonable certainty that the disputed term refers to the original set of “at least three units” introduced in element A. Element D explicitly references the set of “at least two” units. Since the claim discusses arranging the set of “at least two” units adjacent to “said” units, it strongly suggests that “said” does not simultaneously refer to the set of “at least two” units. Instead, it is reasonably certain that the

term “said” refers to the set of “at least three” units first introduced in element A. Because Wireless Seismic’s alternative possible interpretation is not supported by the claim language, the disputed term is not indefinite. Additionally, no further construction of this term is necessary.

#### **6. “said another seismic data acquisition unit”**

This term also appears in claim 1 of the ‘847 Patent. Fairfield argues that no construction is necessary, or in the alternative, seeks to construe the term as “said seismic acquisition unit adjacent to the receiving unit.” Wireless Seismic contends it is indefinite.

Claim 1 states, in relevant part,

“A seismic data transmission system comprising:

A. at least three wireless seismic data acquisition units,

...

B. a receiving unit,

...

C. wherein the short-range radio transmitter and receiver of each wireless seismic data acquisition unit are configured for short-range radio transmission and reception communication with at least two other wireless seismic data acquisition units;

D. “wherein said seismic data acquisition units are physically arranged in an array so that each seismic data acquisition unit is adjacent to at least two other seismic data acquisition units and is capable of short-range radio transmission and reception communication with the at least two other seismic data acquisition units; and

E. wherein said receiving unit is disposed adjacent said array so that the receiving unit is adjacent to at least another seismic data acquisition unit and the short-range radio receiver of the receiving unit is configured for short-range radio reception communication with said another seismic data acquisition unit.”

(the ‘847 Patent 10:7-41.) As with the previous disputed term, Wireless Seismic argues that it is unclear which unit the term “said another seismic data acquisition unit” refers to. Fairfield rightly contends, however, that the language of element E provides necessary context. Element E teaches that the receiving unit introduced in element B is “adjacent to at least another seismic data acquisition unit.” This receiving unit is configured for radio reception communication with

“said another seismic data acquisition unit.” In this context, it is reasonably certain that the disputed term refers to the seismic data acquisition unit that is adjacent to the receiving unit. Thus, the term is not indefinite and no additional construction is required.

### **Corrections**

Fairfield characterizes its proposed constructions for the following terms as corrections of obvious typographical errors. Wireless Seismic disputes this characterization.

District courts may correct “obvious” errors in a patent claim. *CBT Flint Partners, LLC v. Return Path, Inc.*, 654 F.3d 1353, 1358 (Fed. Cir. 2011). But, a court may only correct such an error if the correction is not subject to reasonable debate based on a consideration of the claim language and specification, and the prosecution history does not suggest a different interpretation. *Novo Indus.*, 350 F.3d at 1354. The initial determination of obvious error and the reasonableness of any correction are both viewed from the perspective of one skilled in the art. *See Ultimex Cement Mfg. Corp. v. CTS Cement Mfg. Corp.*, 587 F.3d 1339, 1353 (Fed. Cir. 2009).

### **7. “said antenna”**

This term appears in claim 5 of the ‘847 Patent. Fairfield asks the Court to correct the term to “an antenna,” while Wireless Seismic argues that it is indefinite.

Claim 5 is dependent on claim 1, which does not mention an antenna. Nevertheless, claim 5 states, “the transmission system of claim 1, wherein said antenna is molded into the casing.” (the ‘847 Patent, 10:48-49.) Because claim 1 provides no antecedent basis for the term “said antenna,” Fairfield contends that the term is an obvious error. Thus, the Court should correct the term to “an antenna.”

Wireless Seismic responds that the correction is subject to reasonable debate. The error could either be corrected by amending the term to “an antenna,” or it could be corrected by amending claim 5 to be dependent on claim 4, which does mention an antenna. Since either correction is plausible, Wireless Seismic believes this Court cannot make the proposed correction, and the term is indefinite.

Fairfield responds by arguing that both proposed corrections result in the same claim scope – an antenna molded into the casing of each of the seismic acquisition units introduced in claim 1. In support of its argument, it notes that the specification discloses an embodiment that is similar to its proposed construction. The specification states,

“[w]hile each unit may include an antenna, attached via external connector, in one embodiment of the invention, each unit 12 may include a short-range radio transmission antenna 36 molded or otherwise integrated into the casing 35 of the unit.”

(the ‘847 Patent, 9:22-26.) Thus, Fairfield argues, a person of skill in the art would read the claim as Fairfield interprets it.

Because claim 1 does not reference an antenna, the term “said antenna” in dependent claim 5 is an obvious error. *See Stragent LLC v. Intel Corp.*, No. 6:11-CV-421 LED-JDL, 2013 WL 4829897, \*3 (E.D. Tex. Sept. 9, 2013) (finding error for lack of antecedent basis). Although Wireless Seismic is correct that the error can be corrected in two ways, the mere fact that multiple reasonable corrections exist does not prevent the Court from correcting the term. In *CBT Flint Partners, LLC v. Return Path, Inc.*, the Federal Circuit noted that the district court rightly identified that there were three alternative but reasonable corrections to a claim term. 654 F.3d at 1358. Nevertheless, the Federal Circuit held that the district court erred in finding that it was unauthorized to correct the error. *Id.* at 1358-59. The Federal Circuit reiterated the district court’s responsibility to consider the alternatives “from the viewpoint of one skilled in the art,”

*id.* at 1358, and found that “[b]ecause each of the three proposed reasonable interpretations would result in the same claim scope . . . a person of skill in the art would readily know that the meaning of the claim requires insertion of the word ‘and’ between the words ‘detect’ and ‘analyze.’” *Id.* at 1359.

Here too, either interpretation would have the same claim scope as understood by a person skilled in the art. Using Fairfield’s proposed claim construction, claim 5 would claim an antenna molded into the casing of each of the seismic data acquisition units identified in claim 1. Claim 1 makes clear that each unit has a casing and claim 5 teaches that each casing has an antenna molded into it. If instead, claim 5 is amended to depend upon claim 4, the claim scope remains unchanged. Claim 4 teaches that each seismic data acquisition unit identified in claim 1 has an antenna. Were claim 5 to be dependent on claim 4, it would elaborate that each antenna was molded into the casing of the unit.<sup>6</sup> Thus, under either interpretation, a person of skill in the art would understand that claim 5 is directed to an antenna molded into the casing of a seismic data acquisition unit.

When viewed from the perspective of one skilled in the art, the specification provides sufficient support for a singular reading of the claim term. Neither this Court nor a person of skill in the art is required to guess at which meaning was intended in order to make sense of the claim. *See CBT Flint Partners*, 654 F.3d at 1360. The intrinsic evidence, including the prosecution history, does not suggest a different interpretation. Accordingly, this Court corrects the obvious error in the claim term and construes the term as “an antenna.” The Court further holds that this

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<sup>6</sup> Like claim 1, claim 4 is an open-ended “comprising” claim, indicating that the listed elements are required, but other elements may be added. *See Genentech, Inc. v. Chiron Corp.*, 112 F.3d 495, 501 (Fed. Cir. 1997) (“Comprising is a term of art used in claim language which means that the named elements are essential, but other elements may be added and still form a construct within the scope of the claim.”).

term is not indefinite because, in light of the specification language quoted above, one of skill in the art would be reasonably certain as to the claim's scope.

#### **8. “in the array”**

This term appears twice in claim 1 of the '028 Patent. Fairfield argues that its first use is an obvious error, and should be corrected to read “in an array.” Wireless Seismic contends that any correction is inappropriate and the term is indefinite because there are multiple reasonable interpretations.

Claim 1 of the '028 Patent reads, in relevant part,

“A method for seismic data transmission comprising the steps of:  
A. providing a plurality of seismic acquisition units, wherein each of said seismic acquisition units is capable of acquiring seismic data, receiving a short range radio transmission and transmitting a short range radio transmission;  
B. utilizing a at least two of said seismic acquisition units to transmit seismic data via short range radio transmission to another seismic acquisition unit in the array;  
C. utilizing a at least two of said seismic acquisition units to receive seismic data via short range radio transmission from another seismic acquisition unit in the array.”

(the '028 Patent, 10:13-25.) It is obvious that the term “in the array” is an error. In patent claims, the word “the” refers to something that appears earlier in the claim. Here, however, there is no prior use of the term “array” in claim 1 of the '028 Patent.

Wireless Seismic argues that the Court may not correct this error because it is open to multiple reasonable corrections. It contends that the Court could adopt Fairfield's proposed correction, or it could insert the phrase “in an array” into element A of the claim, thereby providing a proper antecedent basis.

The Court believes that Fairfield's proposed construction is not open to reasonable debate. The specification explains at length that the transmission method uses multiple seismic data acquisition units in an array. Specifically, the specification states,

“[t]he method according to the invention transmits radio signals between individual seismic acquisition units in an array, such that the transmissions can be passed in a relay chain through the array of units. Multiple seismic acquisition units within the array are capable of passing transmissions to multiple other seismic units.”

(the ‘028 Patent, 3:7-12.) In reference to Figure 1, a top view of a seismic acquisition array, the specification further elaborates that

“[t]ransmission network 10 is comprised of a plurality of seismic acquisition units 12 spread out in a seismic array 14 and controlled by control station 16. Array 14 is formed of multiple lines 18 of acquisition units 12.”

(the ‘028 Patent, 4:39-43.) The specification also states, “[i]n the illustration of Fig. 1, array 14 is shown as being comprised of three seismic acquisition unit strings 18*a*, 18*b*, and 18*c*.” (the ‘028 Patent, 5:27-29.) Along with Figure 1, these repeated references inform one of skill in the art that claim 1 is directed to seismic acquisition units in an array. Fairfield’s proposed construction aligns with this understanding. By contrast, Wireless Seismic’s multiple alternative corrections are merely speculative, and not reasonable in light of the intrinsic evidence. Accordingly, this Court finds that the term “in the array” in element B of claim 1 of the ‘028 Patent should be corrected to “in an array.” Further, because the term’s meaning is reasonably certain, the Court finds that it is not indefinite.

## V. CONCLUSION

The Court hereby adopts the parties’ agreed constructions. For the parties’ convenience, the Court repeats its constructions of the disputed terms:

Claim Term	Claim Construction
“seismic data”	“data containing information about lithologic subsurface formations, obtained by applying an acoustic signal to the ground and receiving the reflected signal”
“[seismic] acquisition/ acquiring [seismic data]”	“recording seismic data as part of a seismic exploration survey”
“array”	“one or more lines of individual units, where multiple lines are set out side-by-side forming

	a grid”
“partitioning”	Plain meaning as discussed in Part IV-A-4
the “non-interfering” terms	Plain meaning as discussed in Part IV-A-5
“preset”	“set or determined prior to transmission”
the “subset” terms	Plain meaning as discussed in Part IV-A-7
“utilizing a at least two of said seismic acquisition units”	Plain meaning as discussed in Part IV-A-8
“molded into”	Plain meaning as discussed in Part IV-A-10
“within [short-range] radio transmission contact [with]”	“receiving [short-range] radio signals from”
“substantially prevent communication interference between the first and second pairs”	Indefinite
“so as to form at least two short-range radio transmission paths between adjacent seismic data acquisition units emanating from a plurality of individual units”	Plain meaning as discussed in Part IV-B-3
“the other transmission path”	Plain meaning as discussed in Part IV-B-4
“said seismic data acquisition units”	Plain meaning as discussed in Part IV-B-5
“said another seismic data acquisition unit”	Plain meaning as discussed in Part IV-B-6
“said antenna”	“an antenna”
“in the array”	“in an array”

Finally, as discussed above, the Court orders the parties to submit amended proposed constructions of the term “control station” that comport with the Court’s findings.

**IT IS SO ORDERED.**

**SIGNED at Houston, Texas on this the 10<sup>th</sup> day of March, 2015.**




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KEITH P. ELLISON  
UNITED STATES DISTRICT JUDGE